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Los Alamos
NATIONAL LABORATORY

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Date: February 23, 1996
Refer to: CIO:96-61

Members of the County Council
Los Alamos County Municipal Building
2300 Trinity Drive
Los Alamos, NM 87544

RE: Briefing on Pilot Project for Environmental Restoration Project at Los Alamos National Laboratory

Dear County Council Member:

On March 4, 1996, the Environmental Restoration Project 's Field Unit 4 is scheduled to present a briefing on the Pilot Project scheduled for Los Alamos and Pueblo Canyon. Allyn Pratt will present the briefing, which is scheduled for 6:00 p.m.

Enclosed is a briefing packet consisting of an information sheet on Los Alamos and Pueblo Canyons, an informal Pilot Project outline, and a map of the reaches in Los Alamos and Pueblo Canyon scheduled for the Pilot Project activities. Please note that the activities are scheduled for a starting date of March 4, 1996. The Work Plan for Los Alamos and Pueblo Canyons, which was submitted to the Environmental Protection Agency in November 1995 describes the activities in more detail. The Work Plan is available for your review in the Laboratory's Community Reading Room and Outreach Center, 1350 Central Ave, #101, Los Alamos.

We look forward to meeting with you on March 4. If you have any questions, please call me at 667-1217.

Sincerely,

Marja H. Shaner

Marja H. Shaner

Enc: Information Sheet
Pilot Project Outline
Map of Canyon Reaches

Cy w/enc.:

T. Baca, EM, MS J591
J. Jansen, EM/ER, MS M992
A. Pratt, EES-13, MS 521
D. Broxton, EES-1, D462
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[redacted]

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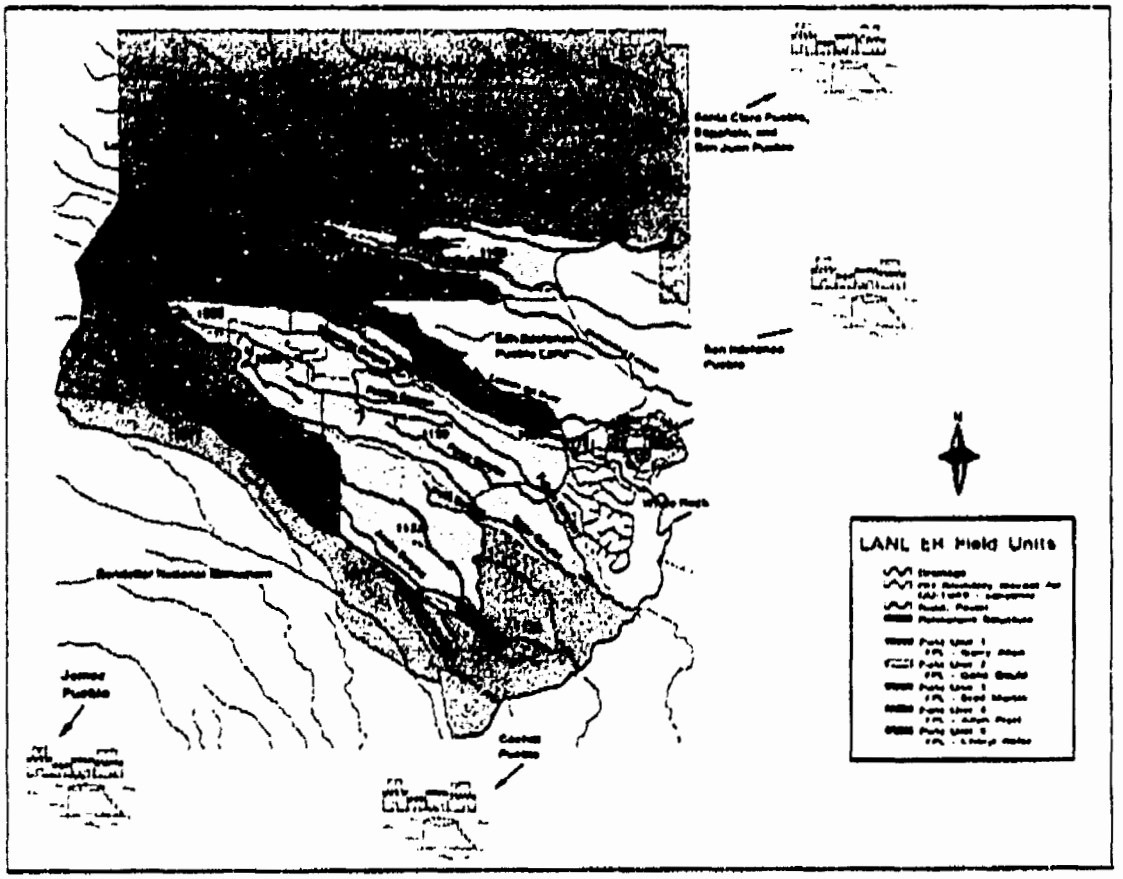
INFORMATION SHEET
LOS ALAMOS & PUEBLO CANYONS
(FIELD UNIT 4)
February 1996

BACKGROUND INFORMATION

Los Alamos and Pueblo Canyons are two of the major drainage areas or canyon systems at Los Alamos National Laboratory that are under evaluation for potential impacts from Laboratory-derived contaminants. Los Alamos Canyon encompasses Technical Areas 2, 21, 41 and former technical areas 1 and 32. Technical Area 45 was the only technical area located directly on Pueblo Canyon. Together these canyons (including 17 additional canyons) are included in Field Unit 4.

LOS ALAMOS CANYON
Technical Area 1

This area consisted of the former Los Alamos Ranch School property and is located on the southern edge of Los Alamos East Mesa (fig. 1). It consists of lands owned by Los Alamos County, the Department of Energy, and privately owned property.



(Figure 1)

During the Manhattan Project years, early experiments on plutonium, uranium and other weapons were conducted at this site. Work included purification and recovery of
plutonium and uranium and development and fabrication of explosive devices that resulted in the first atomic bomb. Early research and development of fusion bombs, which involved working with tritium, also took place at this location. It is known that releases from hazardous chemical and radioactive materials into Los Alamos Canyon have occurred.

Technical Area 2

Technical Area 2 has been the site of different nuclear research reactors, such as the "Water Boiler" series. The first reactor was constructed in 1944 and was fueled by liquid uranyl solutions. These types of reactors were decommissioned in 1987. Another type of reactor called Clementine, was a self contained, plutonium fueled, mercury-cooled reactor. This reactor operated from 1946-1952. The Omega West Reactor, which is presently shut down, is a water-cooled research nuclear reactor fueled by highly enriched uranium. In 1993 there was a leak that caused tritium to be released in the creek bed in Los Alamos Canyon.

Contaminants at Technical Area 2 consist of tritium, uranium, chromium, acids, fission products, transuranic elements and organic chemicals, including PCBs.

Technical Area 21

This area is located on DP mesa immediately east-southeast of the Los Alamos town site and extends to the stream channel of DP Canyon that joins Los Alamos Canyon just east of DP mesa. Between 1945 and 1978 this area was used for research on and production of plutonium metal and other radioactive materials. Other research activities have also taken place at this site. However, the majority of wastes disposed of at this site contained radioactive materials. Surface runoff as well as releases may have contributed contaminants to Los Alamos Canyon. Known contaminants from this site are plutonium, tritium, uranium, Strontium 90, Cesium 137, metals, and organic compounds. In one location, polychlorinated biphenyls (PCBs) have been identified.

Technical Area 32

This area, located on Trinity Drive, and is now used by the Los Alamos County Roads Division for storage and maintenance of equipment, was used from 1944-1954 as the first Laboratory medical research facility. The site contained laboratories, an office building, several warehouses, an incinerator and several septic tank systems. No documented spills occurred at this site.

Technical Area 41

Technical Area 41 consists of laboratories, offices and shop facilities. The facility is used for developing weapon subsystems and conducting long-term studies on weapon subsystems.

The wastes of concern are uranium, plutonium, tritium, lithium, mercury, beryllium, lead, cadmium, explosives, toxic gases, organic chemicals, and thermite-type heat generators.

PUEBLO CANYON
Technical Area 45

This area was the original location of a drainpipe discharging untreated acid waste from operations at Technical Area 1 into Pueblo/Acid Canyon during the early years of the Manhattan Project (1943-1951). In 1951, a radioactive wastewater treatment plant started operating in that area (near what is now the Larry Walkup Aquatic Center) and continued operations until 1964. The treatment plant consisted of the plant and its associated waste lines and outfalls, a vehicle decontamination facility, a sanitary sewer system, and a transformer station. This site was decontaminated and removed during the mid-1960s. All structures were burned or demolished and removed. The sewage lift station was transferred to Los Alamos County. Additional cleanups of this site took place in the late 1970s and early 1980s.

THE CLEANUP PROCESS
What the Laboratory has done so far....

- searched Laboratory archives and interviewed former and current Laboratory employees to find out if possible contaminants were released as a result of Laboratory operations;

- evaluated archival data and Environmental Restoration Project sampling data from mesa-top facilities to determine which areas need investigation.

What the Laboratory is going to do....

- conduct field investigations to define the level of known contaminants and to identify the presence of other contaminants to supplement existing information about sources of contamination and environmental conditions;
- determine which areas require further study and identify areas which could be recommended for expedited cleanup or no further action;
- conduct further field investigations, if necessary, to fully characterize the nature and extent of contamination and evaluate possible risks;
- document results of field investigations and develop recommendations (for no further action, voluntary corrective actions or a corrective measures study and implementation) for a facility investigation report.

Sampling Activities

Surface and subsurface sampling activities and surveys will be conducted to establish the presence or absence of uranium, tritium, plutonium, americium, fission products and hazardous chemicals.

Risk Assessments:

The Environmental Restoration Project staff will conduct a human and ecosystem risk assessment. The human risk assessment will evaluate the risks based on residential, industrial and recreational use of the sites. The ecosystem risk assessment will look at stressors in the canyons environment such as cleanup activities that could disturb existing flora and fauna, or could create new erosion paths.

The Laboratory has worked with the Pueblos to develop a Native American Risk scenario. The scenario addresses concerns the Pueblos have with the characterization and cleanup activities that may have an impact on ceremonial or religious practices.

For more information about Los Alamos and Pueblo Canyons environmental restoration activities, we refer you to the work plan that is available in the Los Alamos National Laboratory Community Reading Room & Outreach Center, 1350 Central, Suite 101, Los Alamos, New Mexico 87544. Copies will also be available at the document repositories at the public libraries in Santa Fe, Española, and Los Alamos, and at the Governor's Office, San Ildefonso Pueblo.

You may also contact Allyn Pratt, the Field Unit 4 Project Leader, at 667-4308, or you may call Marja Shaner at 665-7112 or 1-800-508-4400. You can also reach Marja by E-mail, marja@lanl.gov or by fax 665-4411. Our mailing address is: P. O. Box 1663, MS A117, Los Alamos, NM 87545.

INFORMATION FOR LOS ALAMOS COUNTY COUNCIL PRESENTATION ON PILOT PROJECT AND CANYONS INVESTIGATIONS FOR THE ENVIRONMENTAL RESTORATION PROJECT

LOS ALAMOS NATIONAL LABORATORY

March 4, 1996

The purpose of the Environmental Restoration (ER) Project at Los Alamos National Laboratory is to clean up historical waste sites (established before 1980) on the Laboratory site and in and around the County of Los Alamos. The ER Project activities will include investigations, sampling and analysis of water and soil, and ultimate corrective action. These activities are dictated by the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendments which require the ER Project to perform the following tasks:

- determine the potential for contamination transport into or within the canyon systems;
- evaluate human health risks, ecological and environmental impacts associated with the presence of contaminants;
- refine conceptual models for contamination transport;
- assess the potential for interconnectivity between ground water in the alluvium, intermediate zones and main aquifer; and
- assess the projected impact that contaminants may have off-site and on the Rio Grande.

The investigations in the canyons surrounding Los Alamos (from Rendija Canyon to the north to Chaquehui Canyon to the south of Los Alamos) will be conducted through 2005. Canyons have been prioritized according to nearness to the town of Los Alamos, and our neighboring Pueblos. In total, 8 work plans will be written to lay out the methodology by which this process will be conducted. One work plan, Los Alamos and Pueblo Canyons, has been submitted to the Environmental Protection Agency and the State of New Mexico Environment Department in November 1995. The pilot project to be conducted in reaches of Pueblo and Los Alamos Canyon will refine the methodology to be used in the remaining canyons to be investigated. The pilot project is scheduled to start on March 1, 1996.

The following topics will be discussed in the March 4, 1996 presentation:

1. A short overview of the ER Project
2. Regulatory requirements for the investigation
3. Organization of Field Unit 4, the team responsible for planning and conducting the investigation
4. A conceptual model of the structure of the canyons, transport of contaminants, and possible exposures
5. Overview of the evidence of contamination in sediments and ground water
6. Overview of approaches in sediment and ground water sampling
7. Overview of the approach to human health risk and impact assessments
8. Schedule for Los Alamos and Pueblo Canyons investigations and other canyons
9. Overview of public involvement activities.

Estimated time of presentation: 20 minutes

Time for questions and answers if desired.